IN THE ABSTRACT:

~~Systems and m~~Methods for ~~the manufacture~~ manufacturing~~of~~ reinforced, three-zone, microporous ~~phase inversion~~ membrane having ~~any one of~~ a plurality of different possible pore sizes ~~in any of the three zones~~ from at least a single mother dope batch ~~is disclosed. The systems and methods include~~ including formulating at least a single mother dope batch ~~of dope in a vessel preferably maximizing the non-solvent to solvent ratio for a given weight percentage of polymer for use in a microporous phase inversion membrane production operation to produce three-zone phase inversion membranes having one of a plurality of different predetermined pore sizes in any or all of the three zones. The at least one mother dope batch is~~, controllably ~~formulated~~ formulating the dope in at least one vessel such that the dope temperature ~~of the dope~~ does not exceed a predetermined maximum mixing temperature and is maintained at a ~~relatively low~~ temperature ~~(~~lower than the mixing temperature~~) suitable for storage.~~, heating ~~A~~ a small portion of the dope ~~from the at least one mother batch is then heated~~ to a target temperature corresponding to a specific desired pore size to be formed in at least one zone of the microporous membrane ~~no higher than any one of a plurality of target temperatures,~~ in at least one thermal manipulation apparatus~~, the target temperature corresponding to a specific desired pore size to be formed in at least one zone of the microporous phase inversion membrane that results from operations at a dope processing site. The dope is then,~~ ~~cooled~~ cooling the dope to about room temperature or ~~the~~ a temperature which results in a suitable and/or optimal coating viscosity~~. A~~, operatively connecting at least one dope application apparatus ~~is connected~~ to the at least one thermal manipulation apparatus for transporting the manipulated dope ~~such that any one of a plurality of different pore size producing dopes from the thermal manipulation apparatus is transported~~ to ~~the~~ a dope processing site ~~and applied to any one of the three zones of the three-zone reinforced, microporous membrane being produced~~.